Abstract

Provided are a semiconductor and semiconductor substrate exhibiting low resistance on the substrate side while exhibiting high resistivity in an epitaxially grown layer formed thereover; a method of manufacturing the same; and a semiconductor device employing this semiconductor. The semiconductor consists of a compound single crystal and comprises a region having a planar defect density of $1 \times 10^7/cm^2$ or more and a region having a planar defect density of $1/cm^2$ or less. The semiconductor substrate comprises the aforementioned semiconductor on a substrate. The methods of manufacturing the aforementioned semiconductor and semiconductor substrate are also provided. The semiconductor device comprises the aforementioned semiconductor, an electrode having at least one ohmic contact, and an electrode having at least one non-ohmic contact, wherein the ohmic contact is formed in the high-density defect region of the aforementioned semiconductor and the non-ohmic contact is formed in the low-density defect region thereof.